REMARKS

This is in full and timely response to the above-identified Office Action. Reexamination and reconsideration in light of the proposed amendments and the following remarks are respectfully requested.

Information Disclosure

It is noted that on the initialed copy of Form 1449 that was returned with the Office Action, the Examiner has not initialed reference A5. Inasmuch as no reason has been advanced for not having considered this reference, it is assumed that it has occurred through simple inadvertence. The Examiner is respectfully requested to initial this reference and return a copy with any further action that is taken in connection with this application.

Drawings

Authorization, in a separate letter, has been sought to amend Figs 6 and 9 in a manner which overcomes the objections raised under 37 C.F.R. § 1.83(a). As mentioned above, authorization is sought to amend Fig. 6 in a manner which illustrates the honey-comb member and fin member recited in claim 7 and adds additional lead lines to the numerals 15 in Fig. 9 so that all of the blocking portions are identified to the degree that any possible ambiguity is avoided.

Abstract

The abstract has been reviewed and a substitute abstract, which is in the range of 50 – 150 words and which is couched in clear and concise terms, has been prepared and appended. Favorable reconsideration is respectfully requested.

Claim Amendments

Claims 1-7 and 10-20 have been revised to improve the clarity with which the claimed subject matter is set forth. These amendments overcome/obviate the shortcomings mentioned in paragraph #6 of this Office Action.

Rejections Under 35 U.S.C. § 112

The above mentioned claim amendments overcome the various objections/rejections raised. Every effort has been made to clarify claim wording to render the claimed subject matter both clear and definite.

Rejections Under 35 U.S.C. § 102

The rejections of claims 1-20 under 35 U.S.C. § 102(b) as being anticipated by Panzica et al. or Tanaka et al. or Morlec et al., are respectfully traversed.

The arrangements disclosed in Panzica et al. and Tanaka et al. are such as to have only two flow paths. The first is that along which the gas to be filtered flows. The second is that along which a regenerative gas (e.g. steam in Panzica et al.) flows to flush out the materials which have been trapped in the rotating filter arrangement.

The arrangement disclosed in Morlec et al. differs from the arrangements disclosed in Panzica et al. and Tanaka et al. in that there is disclosure of using a gas flow having a predetermined temperature which passes in and out of the rotating filter element. However, when the flow diagrams are followed, it will be understood that there is basically only two flow paths involved. The air to be filtered enters and is then released after the pollutant is removed via adsorption by the rotating drum T. Then as the drum T rotates to the outer side of the casing in which it is disposed, it is purged with a flow which follows a closed loop wherein the gas is passed through a catalytic combustion device 19.

These publications neither have nor suggest a structure which has 1) first and second independent gas flow path structures, and 2) first and second temperature adjusting fluid flow path structures. There is, therefore, no anticipation of the subject matter set forth in claims 1-11, by any of the three references.

Claims 12-15 call for first and second independent gas flow paths, and a temperature control fluid passage structure defined in the casing through which a temperature control fluid is passed to adjust the temperature in the casing to a level at which the specific gas, which is absorbed by the gas absorption/releasing material, is released and exhausted from the casing through a recovery port which is formed in the casing.

None of the Panzica et al., Tanaka et al. or Morlec et al. references disclose a temperature control fluid passage structure in the housing in addition to first and second gas flow paths and therefore cannot be relied upon to anticipate claims 12-15.

Claims 16-18 call for flow path means within the casing for feeding a temperature adjusting fluid for exclusively changing the temperature of the gas absorption/releasing material depending on a rotational position of the rotating body within the casing and for causing absorption and release of the specific gas in accordance with the rotational position of the rotating body. None of the three references disclose such a flow path means and therefore cannot be relied upon to anticipate the claimed subject matter.

Claim 19 calls for a hollow static portion disposed at a central portion of the rotating body and having an inner hollow portion which is divided by a separation plate thereby to form two introducing path structures through which temperature adjusting fluids having different temperatures pass. This claim also requires first and second independent gas flow path structures. The first gas flow path is required to extend between a supply port and a discharge port and pass through hollow portions of the blocks which form part of the rotational body as the rotational body rotates within the casing. The second gas flow path is required to have a recovery port through which the specific gas which is released from the gas absorption/releasing material, is vented from the casing which houses the rotatable body.

This structure is not disclosed in either of Panzica et al. or Tanaka et al.. Neither document contains any disclosure or hint of any structure which could provide the four flow paths which are recited. The arrangement in Morlec et al., while having a hollow static portion, is arranged so that it is divided to enable the two gas flow paths and enable the outgoing filtered air to be separated from the incoming purge flow. It does not separate two temperatures adjusting fluid flows and therefore does not anticipate the structure used in the arrangement defined in claim 19.

Claim 20 calls for a gas separator for separating carbon dioxide gas from a mixed gas which uses a temperature responsive carbon dioxide absorption/releasing material provided on an inner surface of a rotating body which is enclosed in a casing. This claim also calls for a flow path means formed inside the rotating body for direction an unrestricted flow of carbon dioxide containing gas through the casing and for feeding a temperature adjusting fluid through a selected portion of the rotating body. Additionally, this claim calls for the flow path means to be

divided into a plurality of flow path sections by blocking portions so as to establish different temperature zones within the casing and to cause absorption and release of carbon dioxide depending on a rotational position of the rotating body within the casing.

It is submitted that none of Panzica et al., Tanaka et al. or Morlec et al. can meet these requirements and therefore cannot be relied upon to substantiate an anticipation of the claimed subject matter.

Conclusion

It is submitted that the claims are now both clear and distinct and distinguish over the art applied for at least the reasons advanced above. Favorable reconsideration and allowance of this application is courteously solicited.

Respectfully submitted,

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MARKED-UP VERSIONS OF AMENDED CLAIMS

1. (Once amended) A gas separator for separating a specific gas from a mixed gas, comprising:

an outer casing;

a rotating body disposed inside the casing; [and]

a drive [means] **device** [mounted to the casing and adapted to drive] **which drives** the rotating body to [be rotatable,] **rotate within the casing;**

[said rotating body being formed with] first and second **independent gas** flow [paths formed independently from each other] **path structures**, [said] **the** first **gas** flow path **structure** being [provided with] **adapted to guide a flow of a mixed gas along a first gas flow path which extends through the casing from a supply port to a discharge port and over** a gas absorption/releasing material [for absorbing and releasing] **that is supported in the rotating body, the gas absorption/releasing material being selected to absorb and release** a specific gas [from a] **which is a constituent of the** mixed gas depending on [different] temperature [zones], **the second gas flow path structure having a recovery port structure via which the specific gas, which is released from the gas absorption/releasing material, is discharged from the casing; and**

first and second temperature adjusting fluid flow path structures respectively adapted to convey [wherein fluids of different temperatures depending on a rotating position of] **first and second temperature adjusting fluids through the casing, the first temperature adjusting fluid flow path structure directing the first temperature adjusting fluid through a first zone within the casing to which a sector of** said rotating body **is exposed and establishing a first temperature in the first zone at which the specific gas is released from the gas absorbing/releasing material**[are fed through said second flow path, a heat is transmitted between the first and the second flow paths, and]**, the second temperature adjusting fluid flow path structure directing the second temperature adjusting fluid through a second zone within the casing to which another sector of the rotating body is exposed to establish a second temperature in the second zone which promotes absorption of the specific gas by the gas absorption/releasing material,** [the specific gas is absorbed and released by changing the temperature of the gas absorption/releasing material in

accordance with the rotating position of the rotating body] **the first gas flow path extending through the s c nd zone**.

2. (Once amended) A gas separator according to claim 1, wherein the rotating body [is composed of] **comprises** a plurality of **circumferentially arranged** fan-shaped hollow blocks [arranged in a circumferential direction thereof] and **wherein** the gas absorption/releasing material for absorbing and releasing the specific gas from the mixed gas [depending on different temperature zones] is [provided] **disposed** on [an] **at least one** inner surface of [each of] the blocks.

3. (Once amended) A gas separator according to claim [1] **2**, wherein the rotating body [is provided with] **has** a hollow static portion [at a rotational central portion thereof] **which extends along an axis about which the rotatable body is rotatable**.

4. (Once amended) A gas separator according to claim 3, wherein said static portion is divided into two sections [in the circumferential direction thereof so as] to form [introduction] paths for [introducing] **the first and second temperature adjusting** fluids of different temperatures**,** [and] **wherein** a plurality of supply paths are formed [among a] **between exterior surfaces of the** plurality of the blocks [by disposing] **and wherein** sealing portions **are disposed** between the static portion and the rotating body and between the rotating body and the casing so as to divide the supply paths into two sections[, and the supply paths divided into two sections are communicated with the introduction paths divided into two sections so as to form the second flow path] **through which the first and second temperature adjusting fluids respectively flow**.

5. (Once amended) A gas separator according to claim 1, wherein said rotating body **rotates through** [takes] a plurality of [rotating] **rotational** positions, **wherein** the mixed gas is fed to said gas absorption/releasing material at a first rotating position of the rotating body **which is located in the first zone,** [while] **wherein** the specific gas is released from the gas absorption/releasing material at a second rotational position of the rotating body **which is located in the s cond zone**, and **wher in** blocking portions [for blocking] **, which are located in the casing between the first rotational position and the second rotational position, block** communication

between the first [rotating] **rotati nal** position and the second rotating position [are provided in the casing].

6. (Once amended) A gas separator according to claim 4, wherein [said blocks are divided into ones related to an absorption reaction of the specific gas and other ones related to a releasing reaction of the specific gas and said] **the first and** second **temperature adjusting fluid** flow path **structures** [is] **are** divided by blocking portions so that the number of blocks [related to one of the absorption reaction and the releasing reaction which takes a time longer than another one thereof] **in the second zone** is larger than the number of blocks [related to another one thereof] **in the first zone**.

7. (Once amended) A gas separator according to claim [1] **2**, wherein [either] **at least** one of a honey-comb member and a fin member is provided in the [first and second flow paths] **blocks**.

10. (Once amended) A gas separator according to claim 1, wherein the [mixed gas is a gas containing a carbon dioxide while the] specific gas is [a] carbon dioxide and the gas absorption/releasing material **is a lithium based material which** reacts with the carbon dioxide [so as] to generate [a] lithium carbonate thereby to absorb [the] carbon dioxide and **which** releases the carbon dioxide by [decomposing the lithium] **decomposition of the** carbonate.

11. (Once amended) A gas separator according to claim [1] **10**, wherein [a] **the second** temperature necessary for [performing] the absorption reaction of the carbon dioxide is approximately 500°C while [a] **the first** temperature necessary for [performing] the release reaction of the carbon dioxide is over approximately 700°C.

12. A gas separator for separating a specific gas from a mixed gas, comprising:

an outer casing;

a rotating body disposed inside the casing**, the rotating body containing a gas absorption/releasing material for respectively absorbing and releasing a specific gas from a mixed gas at differ nt temperatures**; and

a drive [means mounted to the casing and adapted to drive] **which rotat s** the rotating body [to be rotatable,]**;**

[said rotating body being formed with] first and second **independent gas** flow paths **formed in the casing** [are independently from each other, said]**, the** first flow path [being] **extending between a supply port and a discharge port which are located in axially opposite ends of the casing, and adapted to pass over the** [provided with a] gas absorption/releasing material for absorbing [and releasing a] **the** specific gas from a mixed gas [depending on different] **in a first** temperature zone[s] **defined within the casing**, the casing further including **a second temperature zone through which the rotating body rotates, the temperature of the second temperature zone being controlled by a temperature control fluid, which is passed through a temperature control fluid passage structure defined in the casing, to a level at which the specific gas which is absorbed by the gas absorption/releasing material, is released and exhausted from the casing through a recovery port which is formed in the casing** [wherein said rotating body takes a plurality of rotating positions including first and second rotating positions, the mixed gas set to a temperature zone necessary for performing an absorption reaction of the specific gas is fed at the first rotating position of the rotating body while a fluid of a temperature necessary for performing a release reaction of the specific gas is fed at the second rotating position of the rotating body, a heat is transmitted between the first and second flow paths and the specific gas is absorbed and released by changing the temperature of the gas absorption/releasing material in accordance with the rotating positions of the rotating body].

13. (Once amended) A gas separator according to claim 12, wherein said rotating body [is composed of] **comprises** a plurality of fan-shaped hollow blocks [arranged in the circumferential direction thereof and said]**, and wherein the** rotating body has a central [portion formed as a] hollow static portion[, from which a fluid [of a temperature necessary for performing a release reaction of the specific gas is introduced,] and supply paths [are] formed between the blocks [so as to be communicated with the static portion thereby to form the second flow path] **which comprise the temperature control fluid passage structure**.

14. (Once amended) A gas separator according to claim 12, wherein [the mixed gas is a gas containing a carbon dioxide while] the specific gas is [a] carbon dioxide and **wherein** the gas absorption/releasing material reacts with the carbon dioxide [so as to generate a] **to form** lithium carbonate thereby to absorb the carbon dioxide and releases the carbon dioxide by [decomposing] **decomposition of** the lithium carbonate.

15. (Once amended) A gas separator according to claim [12] **14**, wherein [a] **the second** temperature necessary for [performing] the absorption reaction of the carbon dioxide is approximately 500°C while [a] **the first** temperature necessary for [performing] the release reaction of the carbon dioxide is over approximately 700°C.

16. (Once amended) A gas separator for separating a specific gas from a mixed gas, comprising:

an outer casing;

a rotating body disposed inside the casing**, the rotating body having a temperature responsive gas absorption/releasing material disposed therein for absorbing and releasing a specific gas**; [and]

a drive [means mounted to the casing and] adapted to drive the rotating body to [be rotatable] **rotate**, **and**

[said rotating body being provided with a gas absorption/releasing material for absorbing and releasing a specific gas depending on different temperature zones, wherein a]

flow path **means within the casing** for feeding a **temperature adjusting** fluid for **exclusively** changing the temperature of the gas absorption/releasing material depending on a [rotating] **rotational** position of the rotating body [is provided] **within the casing** [so as to absorb] **and for causing absorption** and release [a] **of the** specific gas [based on a rotating] **in accordance with the rotational** position of the rotating body.

17. (Once amended) A gas separator according to claim 16, wherein [the mixed gas is a gas containing a carbon dioxide while] the specific gas is [a] carbon dioxide and **wherein** the gas absorption/releasing material reacts with the carbon dioxide so

as to [generate a] **form** lithium carbonate thereby [to absorb] **abs rbing** the carbon dioxide and releases the carbon dioxide by decomposing the lithium carbonate.

18. (Once amended) A gas separator according to claim 16, wherein a temperature necessary for [performing] the absorption reaction of the carbon dioxide is approximately 500°C while a temperature necessary for [performing] the release reaction of the carbon dioxide is over approximately 700°C.

19. (Once amended) A gas separator for separating a specific gas from a mixed gas, comprising:

an outer casing;

a rotating body disposed inside the casing, said rotating body [being composed of] **comprising** a plurality of **hollow** fan-shaped blocks [arranged in a circumferential direction thereof];

a drive [means mounted to the casing and] adapted to drive the rotating body [to be rotatable] in a predetermined direction;

a gas absorption/releasing material provided [to] **in hollow portions of** the blocks and adapted to absorb and release a specific gas from a mixed gas [depending on] **in response to exposure to** different temperature zones; and

a hollow static portion disposed at a central portion of the rotating body and having an inner hollow portion which is divided by a separation plate thereby to form two introducing [paths] **path structures** through which temperature adjusting fluids, having different temperatures, pass[, said rotating body being formed with]; first and second **independent gas** flow [paths formed independently from each other, said first flow path being provided with the gas absorption/releasing material, and wherein fluids of different temperatures depending on a rotating position of the rotating body are fed through said second flow path so that a heat is transmitted between the first and the second flow paths] **path structures formed in the casing, the first gas flow path extending between a supply port and a discharge port and passing through the hollow portions of the blocks of the rotational body as the rotational body rotates in the casing, the second gas flow path having a recovery port through which the specific gas which is released from th gas absorption/releasing material, is vented from the casing**.

20. (Once amended) A gas separator for separating [a specific] **carb n di xid** gas from a mixed gas comprising:

an outer casing;

a rotating body disposed inside the casing;

a drive [means mounted to the casing and] adapted to drive the rotating body [to be rotatable] in a predetermined direction;

a **temperature responsive** [gas] **carbon dioxide** absorption/releasing [means] **material** provided on an inner surface of said rotating body and adapted to absorb and release [a specific gas depending on different temperature zones] **carbon dioxide**; and

a flow path means formed inside the rotating body for **directing an essentially unrestricted flow of a carbon dioxide containing gas through the casing and for** feeding a **temperature adjusting** fluid [thereinto] **through a selected portion of the rotating body**, said flow path means being divided into a plurality of flow path sections by blocking portions so as to **establish different temperature zones within the casing and to cause** [absorb] **absorption** and release [the specific gas] **of carbon dioxide** depending on a [rotating] **rotational** position of the rotating body [in accordance with a temperature of the fluid flowing the respective flow path sections] **within the casing**.

Substitute Abstract

ABSTRACT OF THE DISCLOSURE

A circular rotating body having a plurality of fan-shaped blocks is disposed inside a casing and driven to rotate. A gas absorption/releasing material in the blocks absorbs/releases a specific gas component from a gas mixture depending on temperature. The rotating body has a hollow static central portion which is divided to form two temperature adjusting fluid paths through which temperature adjusting fluids having different temperatures pass. First and second independent gas flow paths are defined by the casing. A gas mixture containing the gaseous component flows along the first gas flow path through blocks which are heated to a first temperature at which absorption takes place. The blocks are then rotated to a position wherein they are heated to a higher second temperature and release the gaseous component which is exhausted via the second gas flow path. Blocks sequentially enter positions which separate the two different zones.